Application No. 10/642,197
Attorney Docket: MA-581-US (MAT.023)

REMARKS

Entry of this amendment is proper under 35 USC §1.116, since no new claims or new issues are raised herein.

Claims 1-7, 9-16, and 18-20 are all the claims presently pending in the application. Claims 8 and 17 have been incorporated into their respective independent parent claims, so that no new issue is raised by this claim amendment. The amendments introduce no new matter. Claims 8 and 17 are canceled.

It is noted that Applicants specifically state that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

The examiner objects to claim 1. Applicants believe the above claim amendments appropriately address the examiner's concerns and request that the examiner reconsider and withdraw this objection.

Claims 8 and 17 stand rejected under 35 USC § 112, second paragraph, as allegedly indefinite. Applicants believe the above claim amendments appropriately address the examiner's concerns and requested the examiner reconsiders and withdraw this rejection.

Claims 1-19 stand rejected under 35 U.S.C. §102(e) as anticipated by US 6,526,056 to Rekter, and claim 20 stands rejected under 35 U.S.C. §103(a) as unpatentable over Rekter.

These rejections are again respectfully traversed in the following discussion.

THE CLAIMED INVENTION

The claimed invention, as exemplarily described in the embodiment of independent claim 1, relates to a node in an Ethernet network to relay a modified Ethernet frame.

The node can selectively insert two or more VLAN tags into a modified Ethernet frame. The node can also selectively remove an other VLAN tag from the Ethernet frame. The VLAN tags are inserted to and removed from the Ethernet frame during a frame relay process. The frame comprises an Ethernet frame, as modified such that network control information is selectively stored to said VLAN tags and the network control information is not restricted to a 64-byte minimum frame size restriction of network control information, as defined by the Ethernet standard.

7

Application No. 10/642,197
Attorney Docket: MA-581-US (MAT.023)

A conventional node in Ethernet is controlled with a network control frame storing the network control information in the payload section and the address of the node to be controlled in the MAC address and the IP address. If a user uses the entire network bandwidth for data transmission, then the node cannot send the control frame. In addition, the control frame needs to have at least 64 bytes regardless of the control information amount for the node according to Ethernet standard specified by IEEE802.3.

IEEE802.1Q, that provides for the technology related to the VLAN, specifies that a VLAN tag shall be given to a frame during frame relay for network separation. The node that relays conventional Ethernet frames has a function to process at most one VLAN tag at a time in frame relay and a forwarding table to store the VLAN tag information given during such frame relay assures an information area for one VLAN tag only.

Because the VLAN tag in the frame is the information for network separation, the node that relays the frame with VLAN tag does not change the contents of the VLAN tag. The information in the VLAN tag is used for frame transfer only. Further, in transmission of the VLAN frame at the data link layer, the frame is relayed and the transfer port is determined by reference to the MAC address and the VLAN ID.

The conventional node control in Ethernet as described above has several drawbacks. A conventional node in Ethernet as specified in IEEE802.3 is controlled using the frame storing the control information in the payload section and the address of the node to be controlled in the MAC address and the IP address. Thus, while the user uses the entire network bandwidth for data transmission, the node cannot send the control frame. The control frame needs to have at least 64 bytes regardless of the control information amount for the node according to Ethernet standard. If the control frame is frequently sent in the network, it may oppress the bandwidth of the user data. When the VLAN tag is given for frame transfer, several VLAN tags cannot be provided because there is no information area in the forwarding table. And, a loop network may be formed in IEEE802.3 Ethernet, because no function to discard frames when a loop of packet transfer is generated in VLAN packet transfer at the data link layer has been realized, the looped packets occupy the network or induce oppression of the packet memory in the system, which results in unstable status of the network.

The claimed invention, on the other hand, provides a frame transfer method and a

8

Application No. 10/642,197
Attorney Docket: MA-581-US (MAT.023)

node in Ethernet that enable <u>transmission of the network control information</u> from the node even <u>while the user is using the network</u>. The frame transfer method and node in Ethernet can <u>minimize oppression of the network bandwidth caused by transmission of the network control information</u> by enabling <u>transmission of the minimum information regardless of the frame restriction</u>. The frame transfer method and node in Ethernet <u>can send a large information amount including the network control information as tags</u> by enabling <u>provision of several tags in Ethernet frame transfer</u>. The frame transfer method and node in Ethernet enable <u>discarding of frames in VLAN packet transfer at the data link layer</u> and to thereby <u>prevent the network from becoming unstable by avoiding occupation of the network by looped packets and oppression of the packet memory in the system</u>.

THE PRIOR ART REJECTIONS

Claims 1-19 stand rejected under 35 U.S.C. §102(e) as anticipated by Rekter, and claim 20 stands rejected as obvious over Rekter. However, Applicants submit that there are features of the claimed invention which are neither disclosed nor suggested in Rekter.

With regard to independent claim 1, Rekter fails to disclose or suggest at least "... an element which inserts <u>two or more VLAN tags</u> into said frame and <u>removes an other VLAN tag in a relay process of said frame</u>."

The Examiner points to column 4, lines 64-66, as demonstrating insertion of two tags and to column 8, lines 41-54, as demonstrating removal of a tag.

However, as applicants pointed out in their previous response, the insertion of <u>two</u> tags <u>and removal of a tag</u> in Rekter is not being executed by the <u>same</u> unit, as clearly explained at lines 31-46 of column 8: "*We now return to FIG.1 and assume that PE2 has just sent P2 a packet thus tagged.... When P2 forwards the packet to P1, it replaces tag T2 with a new tag, T1, which P1 has asked its neighbors to attach to any packets that should be sent through PE1-egress routes, and P1 similarly makes its routing decision without having had to maintain separate routing information for the destination VPN.*"

In lines 51-52 of column 8, Rekter further describes: "*So PE1 forwards the packet to CE1 after removing tag T3.*" Thus, again there is no suggestion in the description in column 8 of Rekter that <u>two tags are inserted and one tag removed</u> by the <u>same</u> unit.

In paragraph 8 on page 6 of the office action, the examiner responds:

9

Application No. 10/642,197
Attorney Docket: MA-581-US (MAT.023)

"The claims had been given the broadest reasonable interpretation and the claims do not explicitly recite that the inserting and removing are done the same point in time to the same single frame. Thus Rekter discloses an element, such as PE2, that inserts two tags in one direction and in an opposite direction would remove a tag (PE2 would function as done by PE1 in figures 1 and 7)."

In response, applicants note that the Examiner's interpretation recited above fails to satisfy the plain meaning of the claim language, since independent claim 1 clearly requires that the same frame be involved in this insertion/removal process. Therefore, there is no opportunity to interpret this language as inserting/removing tags in opposite directions, since two different frames would be involved in the bi-direction transmission. Thus, the Examiner is not broadly interpreting the independent claim language.

Rather, the Examiner simply fails to acknowledge the plain meaning of the claim language. In order to satisfy the plain meaning of the claim language of independent claim 1, the PE2 unit in the above-recited description from Rekter would have to also remove a tag from the same frame. There is no suggestion in Rekter for this additional step of removing a tag from the same frame in PE2.

However, in an effort to expedite prosecution, the independent claims have been further amended to incorporate dependent claims that clarify how this feature of the independent claim is achieved. Rekter fails to teach or suggest the feature of modifying Ethernet frames such as to capability of selectively inserting control information in the VLAN tags as a modification of the Ethernet standard.

On page 4 of the office action, relative to claims 8 and 17, the Examiner points to the description at line 49 of column 7 through line 14 of column 8. The Examiner alleges that this description demonstrates that CRC, address, type field, which three parameters the examiner considers to be control information, is stored in tags in Rekter. Applicants disagree, since the control mechanism in Rekter does not modify the tags shown in the lower part of figure 2 to selectively incorporate control information, as a deviation from the ethernet standard. Rather, as explained in the abstract, the tag insertion capability in Rekter occurs because network routers have received generic instructions for tag insertion, a concept entirely different from that described by the independent claims.

As applicants explained in their previous response, relative to claims 8 and 17, the

10

Application No. 10/642,197
Attorney Docket: MA-581-US (MAT.023)

description at line 49 of column 7 through line 15 of column 8 does not reasonably describe control information being stored in a tag that is inserted, since the description in these lines describe generic Ethernet control information. As explained above, this feature of the present invention allows control information to be sent along with packets having payload information. Figure 17 of the present application shows this aspect of the claimed invention.

Thus, Rekter fails to teach or suggest an element that can selectively both removes a tag and replaces it with two or more tags, as required by independent claim 1.

Hence, turning to the clear language of the claims, applicants again point out that in Rekter there is no teaching or suggestion of: "...an element which inserts two or more VLAN tags into said frame and removes an other VLAN tag in a relay process of said frame ....", as required by independent claim 1.

Moreover, as further required by independent claim 1, there is no teaching or suggestion in Rekter of: ".... wherein said frame comprises an Ethernet frame, as modified such that network control information is selectively stored to said VLAN tags and said network control information is not restricted to a 64-byte minimum frame size restriction of network control information, as defined by a standard of said Ethernet.

Relative to the rejection for claims 4, 5, and 14, Applicants again point out that there is no suggestion in lines 5-6 of column 9 that information from two or more VLAN tags are used for the forwarding table search.

Claims 11-19 recite similar features to claims 1-10, and stand rejected on substantially similar basis, and Applicants again traverse the rejection of claims 11-19 on substantially similar grounds as discussed above.

Relative to the rejection currently of record for recently-added claim 20, in paragraph 7 beginning at the bottom of page 6 of the Office Action, the Examiner seemingly considers that the claimed invention can be dismissed as a simple change in size. In response, Applicants bring to the Examiner's attention that a change in physical size of an object may well not be the basis for patentability. However, the change in size of a data field in an Ethernet frame that is not consistent with the Ethernet standard requires that the Examiner make an objective analysis that includes a reasonable rationale to modify the method and size of the frames defined in the Ethernet standards, since the conventional method certainly teaches against the claimed difference. Therefore, Applicants respectfully submit that the

11

Application No. 10/642,197
Attorney Docket: MA-581-US (MAT.023)

Examiner has failed to establish a *prima facie* obviousness rejection for this claim 20.

Thus, Applicant respectfully requests the Examiner reconsider and withdraw the rejection of claims 1- 20.

CONCLUSION AND FORMAL MATTERS

In view of the foregoing, Applicants submit that claims 1-7, 9-16, and 18-20, all the claims presently pending in the application, are patentably distinct over the prior art of record and are allowable, and that the application is in condition for allowance. Such action would be appreciated.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned attorney at the local telephone number listed below to discuss any other changes deemed necessary for allowance in a telephonic or personal interview.

To the extent necessary, Applicants petition for an extension of time under 37 CFR §1.136. The Commissioner is authorized to charge any deficiency in fees, including extension of time fees, or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

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12